Rhode Island

In 1996, Rhode Island had the smallest amount of utility generating capability in the Nation; however, 55 percent of total capability in the State, the largest percentage nationally, is nonutility capability. Most of Rhode Island's utility electricity is produced by gas-fired plants. Of the five utility plants located in Rhode Island, the largest is the gas-fired Manchester Street plant, which is the only plant in the State with a capability of over 10 megawatts. Generation from gas units went from none in 1986, when Manchester Street primarily used oil for generation, to 98 percent in 1996. Due to the restructuring of the electric power industry in Rhode Island, utility-owned generation is being sold. In 1998, the New England Electric System (NEES) sold Manchester Street to the U.S. Generating Co., a nonutility. Additionally, about 500 megawatts of new nonutility gas-fired generation is being planned in Rhode Island.

With primarily gas-fired plants and no coal plants in the State, no generating units were cited by Title IV of the Clean Air Act Amendments of 1990 to begin compliance with stricter emissions reductions requirements for sulfur dioxide (SO_2) and nitrogen oxides (NO_x) in 1995. Among all States, Rhode Island's emissions of SO_2, NO_x, and carbon dioxide (CO_2) ranked forty-ninth, forty-fifth, and forty-seventh, respectively. However, because of Rhode Island's small area, it was second in the United States in emissions of NO_x from electricity generators per square mile and fourth in CO_2 per square mile. The high concentration of NO_x has made it likely that Rhode Island will need to design a State implementation plan for reducing ground-level ozone in response to a proposal released by the Environmental Protection Agency (EPA) in October 1998. The EPA proposal does not mandate which sources must reduce pollution. However, EPA states that utilities would be one of the most likely sources of NO_x emissions reductions. Rhode Island is also part of the Ozone Transport Commission (OTC).[1] Each of the 13 States of the OTC is responsible for enacting regulations in order to achieve region-wide NO_x reductions in a consistent, enforceable manner, and for allocating its NO_x Budget Program allowances among NO_x sources in the State. The targets in this program are all electricity generating facilities with a rated output of 15 megawatts or more and large industrial boilers. Rhode Island has issued its draft rule for its NO_x Budget Program.

In 1996, Rhode Island had the sixth most expensive electricity in the Nation at 10.48 cents per kilowatthour. The largest utility in terms of retail sales is Narragansett Electric Company, an investor-owned company and subsidiary of NEES. There are two other investor-owned distribution utilities in the State: Blackstone Valley and Newport Electric, both subsidiaries of Eastern Utilities. Rhode Island has only one small publicly owned utility and no cooperatives.

In August 1996, the Rhode Island Utility Restructuring Act was enacted. In July 1997, Rhode Island became the first State to implement retail competition, beginning by phasing-in large industrial customers. By January 1998, all consumers in Rhode Island had the option to choose their generation supplier. As required by the law, rates have been reduced by approximately 7 percent. The sale of NEES generating plants has reduced rates in Narragansett's service territory by another 12 percent. With the rate reductions, the standard offer rates set by the Rhode Island Public Utility Commission (PUC) for the investor-owned distribution utilities are approximately 3.2 cents per kilowatthour, and consumers have had little incentive to switch to competitors that are not able to offer lower prices than the standard offer. In a recent rate case hearing, the PUC approved increases in the standard offer rates for all three investor-owned utilities. As the standard offer rates increase, more competition is expected. The restructuring law also allows recovery of stranded costs via transition charges on consumers' bills for 12 ½ years, funds energy conservation and renewable research and development,[2] and requires divestiture of 15 percent of generation. (In 1998, NEES sold of all its generating capability in Rhode Island.)

1.The Ozone Transport Region comprises the States of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, the northern counties of Virginia, and the District of Columbia.

2.Energy Information Administration, Status of State Electric Utility Deregulation Activity, http://www.eia.doe.gov/cneaf/ electricity/chg_str/tab5rev.html.

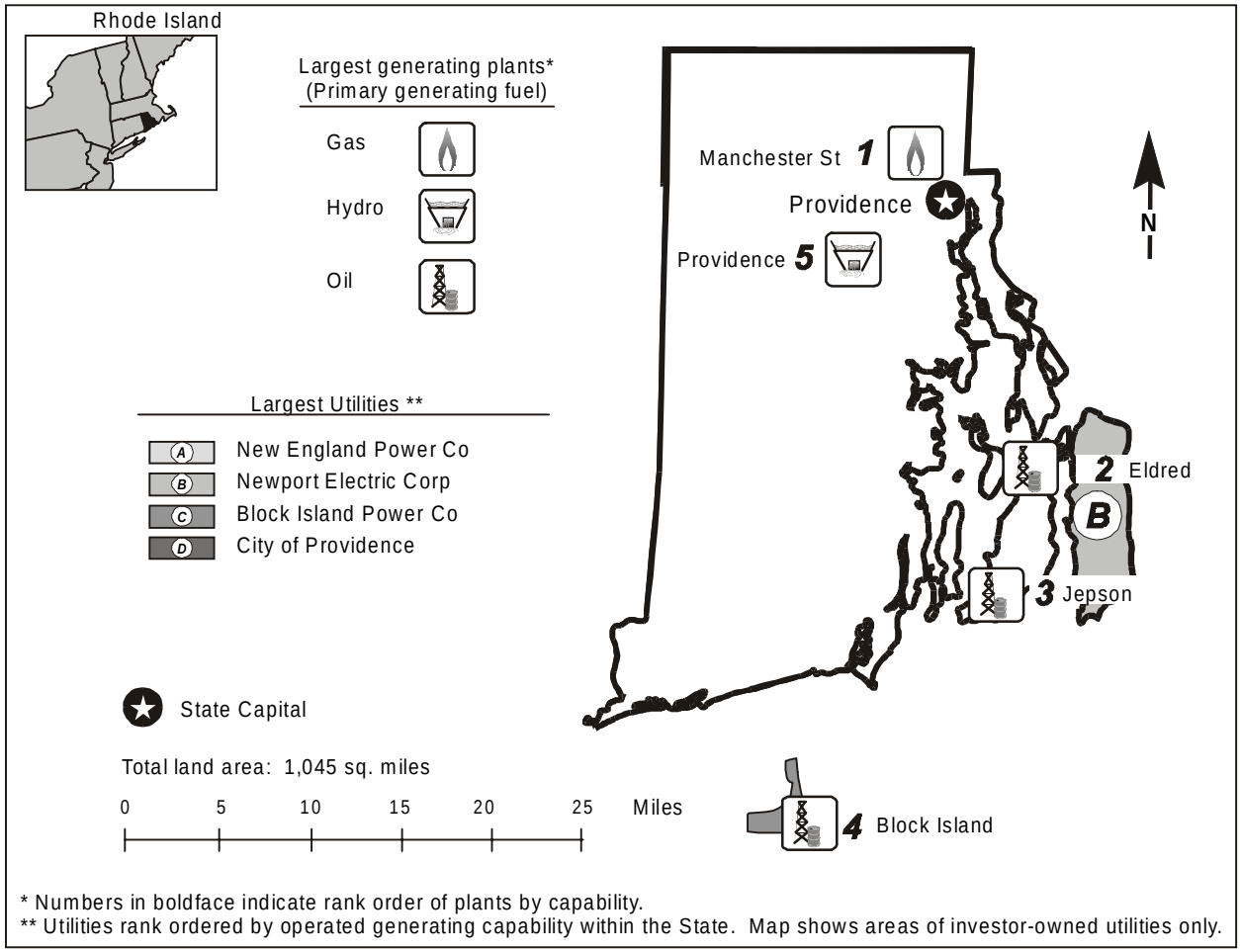

Table 1. 1996 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		WPCC
Net Exporter or Importer		Importer
State Primary Generating Fuel		Gas
Population (as of 7/96)	988,283	43
Average Revenue (cents/kWh)	10.48	[a]46
Industry		
Capability (MWe)	979	[b]44
Generation (MWh)	7,967,377	[b]42
Capability/person (KWe/person)	0.99	[b]45
Generation/person (MWh/person)	8.06	[b]39
Sulfur Dioxide Emissions (Thousand Short Tons)	1	49
Nitrogen Oxide Emissions (Thousand Short Tons)	16	45
Carbon Dioxide Emissions (Thousand Short Tons)	4,169	47
Sulfur Dioxide/sq. mile (Tons)	0.96	37
Nitrogen Oxides/sq. mile (Tons)	15.05	2
Carbon Dioxide/sq. mile (Tons)	3,989.40	4

Item	Value	U.S. Rank
Utility		
Capability (MWe)	441	51
Generation (MWh)	3,301,111	50
Average Age of Coal Plants	--	
Average Age of Oil-fired Plants	26 years	
Average Age of Gas-fired Plants	50 years	
Average Age of Nuclear Plants	--	
Average Age of Hydroelectric Plants	66 years	
Average Age of Other Plants	--	
Nonutility[c]		
Capability (MWe)	538	29
Percentage Share of Capability	55.0	1
Generation (MWh)	4,666,266	16
Percentage Share of Generation	58.6	1

-- = Not applicable.

Table 2. Five Largest Utility Plants, 1996

Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Manchester Street	Gas	New England Power Co	420
2. Eldred	Oil	Newport Electric Corp	8
3. Jepson	Oil	Newport Electric Corp	8
4. Block Island	Oil	Block Island Power Co	4
5. Providence	Hydro	City of Providence	1

Table 3. Top Four Utilities with Largest Generating Capability, and Type, Within the State, 1996
(Megawatts Electric)

Utility	Net Summer Capability	Net Coal Capability	Net Oil Capability	Net Gas Capability	Net Nuclear Capability	Net Hydro/Other Capability
A. New England Power Co	420	--	--	420	--	--
B. Newport Electric Corp	16	--	16	--	--	--
C. Block Island Power Co	4	--	4	--	--	--
D. City of Providence	1	--	--	--	--	1
Total	441	--	20	420	--	1
Percentage of Industry Capability	45.0	--	--	--	--	--

-- = Not applicable.

Figure 1. Utility Generating Capability by Primary Energy Source, 1996

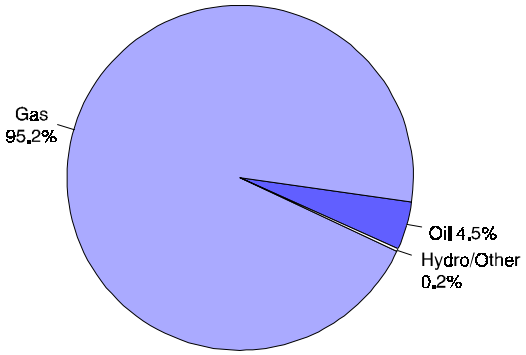

Figure 2. Utility Generation by Primary Energy Source, 1996

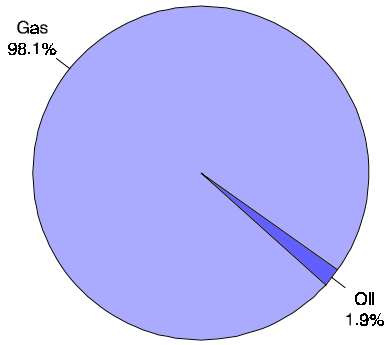

Figure 3. Energy Consumed at Electric Utilities by Primary Energy Source, 1996

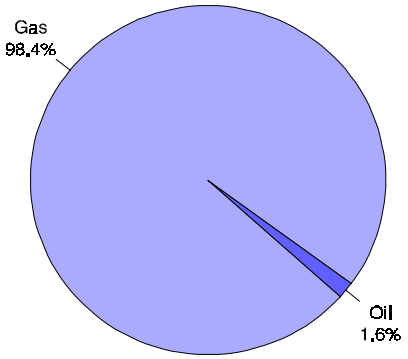

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1986, 1991, and 1996
(Megawatts Electric)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	--	--	--	--	--	--
Oil	125	161	20	*45.8*	*61.7*	*4.5*
Gas	146	99	420	*53.5*	*37.9*	*95.2*
Nuclear	--	--	--	--	--	--
Hydro/Other	1	1	1	*0.4*	*0.4*	*0.2*
Total Utility	273	261	441	*100.0*	*100.0*	*100.0*
Total Nonutility	16	W	538	--	--	--

-- = Not applicable. W = Withheld.

Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1986, 1991, and 1996
(Thousand Kilowatthours)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	--	--	--	--	--	--
Oil	724,027	54,218	61,675	*100.0*	*31.6*	*1.9*
Gas	--	117,239	3,239,436	--	*68.4*	*98.1*
Nuclear	--	--	--	--	--	--
Hydro/Other	--	--	--	--	--	--
Total Utility	724,027	171,457	3,301,111	*100.0*	*100.0*	*100.0*
Total Nonutility	58,103	W	4,666,266	–	–	–

-- = Not applicable. W = Withheld.

Table 6. Electric Power Industry Consumption by Primary Energy Source, 1986, 1991, and 1996
(Quadrillion Btu)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	--	--	--	--	--	--
Oil	0.009	0.001	(s)	*100.0*	*34.5*	*1.6*
Gas	--	0.002	0.026	--	*65.5*	*98.4*
Nuclear	--	--	--	--	--	--
Hydro/Other	--	--	--	--	--	--
Total Utility	0.009	0.003	0.026	*100.0*	*100.0*	*100.0*
Total Nonutility	0.027	W	0.043	--	--	--

-- = Not applicable. W = Withheld. (s) = Nonzero value less than 0.0005.

Figure 4. Utility Generation of Electricity by Primary Energy Source, 1986-1996

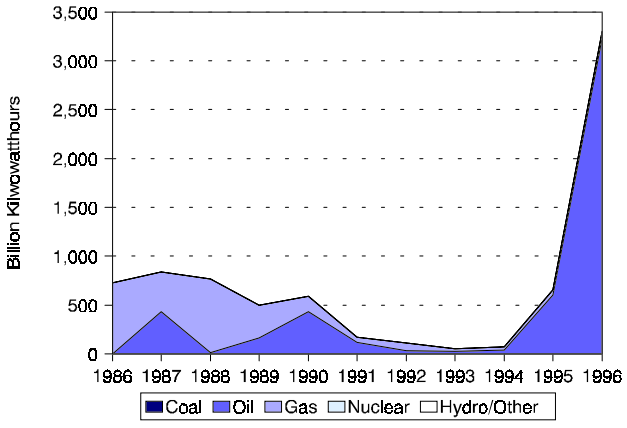

Figure 5. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986-1996
(1996 Dollars)

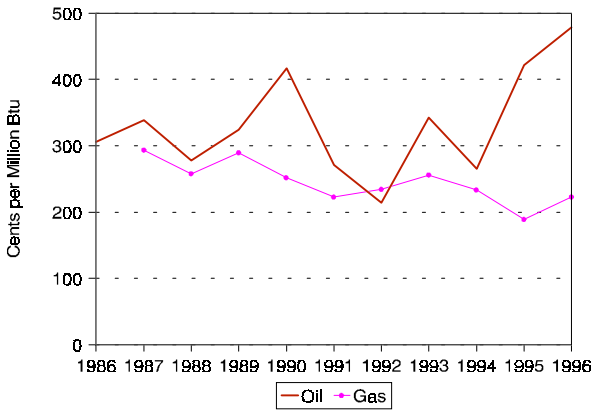

Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996
(Cents per Million Btu, 1996 Dollars)

Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal	--	--	--	--
Oil	306.0	271.0	478.7	4.6
Gas	--	222.5	222.6	--

-- = Not applicable.

Table 8. Electric Power Industry Emissions Estimates, 1986, 1991, and 1996
(Thousand Short Tons)

Emission Type	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Sulfur Dioxide	4	(s)	1	-13.9
Nitrogen Oxides[d]	1	2	16	27.2
Carbon Dioxide[d]	743	1,637	4,169	18.8

(s) = Nonzero value less than 0.05.

Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996

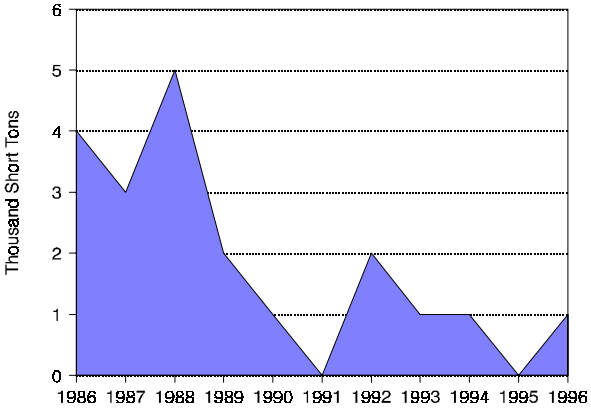

Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996

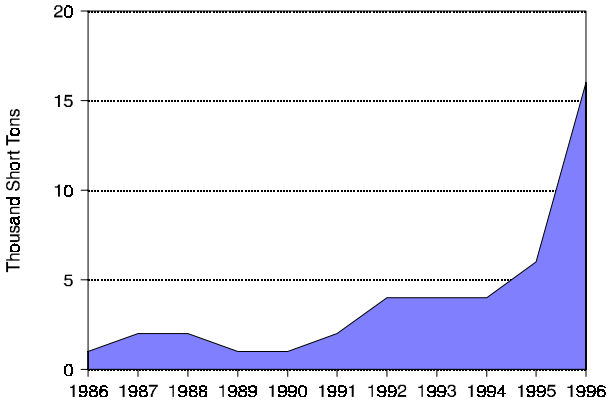

Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996

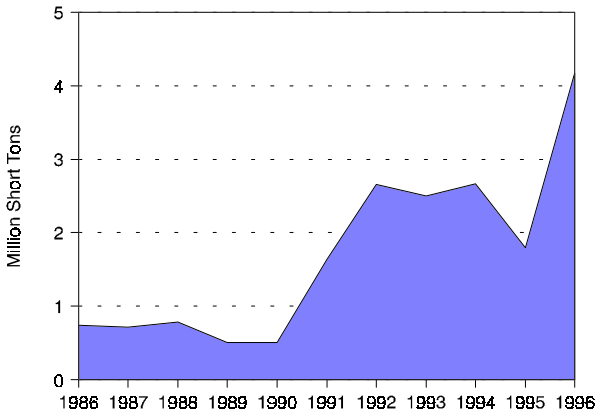

Table 9. Utility Retail Sales by Sector, 1986, 1991, and 1996
(Megawatthours)

Sector	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Residential	2,063,594	2,368,833	2,480,612	1.9	36.5	37.0	37.6
Commercial	2,075,803	2,474,170	2,607,368	2.3	36.7	38.6	39.5
Industrial	1,326,265	1,363,158	1,350,838	0.2	23.4	21.3	20.5
Other	191,760	196,885	165,380	-1.5	3.4	3.1	2.5
Total	5,657,421	6,403,046	6,604,198	1.6	100.0	100.0	100.0

Table 10. Utility Retail Sales Statistics, 1986, 1991, and 1996

Item	Investor-Owned Utility	Public	Federal	Cooperative	Total
			1986		
Number of Utilities	4	1	--	--	5
Number of Retail Customers	399,747	3,409	--	--	403,156
Retail Sales (MWh)	5,631,466	25,955	--	--	5,657,421
Percentage of Retail Sales	99.5	0.5	--	--	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	580,076	3,176	--	--	583,252
Percentage of Revenue	99.5	0.5	--	--	100.0
			1991		
Number of Utilities	4	1	--	--	5
Number of Retail Customers	433,245	3,903	--	--	437,148
Retail Sales (MWh)	6,371,130	31,916	--	--	6,403,046
Percentage of Retail Sales	99.5	0.5	--	--	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	727,315	4,507	--	--	731,822
Percentage of Revenue	99.4	0.6	--	--	100.0
			1996		
Number of Utilities	4	1	--	--	5
Number of Retail Customers	446,996	4,025	--	--	451,021
Retail Sales (MWh)	6,568,007	36,191	--	--	6,604,198
Percentage of Retail Sales	99.5	0.6	--	--	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	687,949	3,950	--	--	691,899
Percentage of Revenue	99.4	0.6	--	--	100.0

-- = Not applicable.